Title (en)

Method of bonding plastic hydrophobic film to metallic sheet and a bipolar rechargeable battery

Title (de)

Verfahren zum Verbinden einer hydrophoben Kunststofffolie mit einer Metallschicht

Title (fr)

Procédé pour relier un fil en matière plastique hydrophobe avec une feuille metallique

Publication

EP 0863560 A2 19980909 (EN)

Application

EP 98301543 A 19980303

Priority

US 80800997 A 19970303

Abstract (en)

Plastic hydrophobic material (144, 146) is bonded to a metallic sheet member (142) such that the resulting sandwich structure is impervious to electrochemical delamination. First and second films (144, 146) of the plastic hydrophobic material are applied to opposed surfaces (148, 150) of the metallic sheet member (142) and extend beyond a peripheral edge (154) of the metallic sheet member (142) to form contiguous border portions (156, 158). A plurality of perforations (152) are formed through the metallic sheet member (142) at locations spaced from its peripheral edge (154). A resulting sandwich structure of the metallic sheet member (142) and the first and second films (144, 146) are compressed and simultaneously the temperature is raised to the sintering temperature of the hydrophobic film material. The first and second films (144, 146) are caused to melt sufficiently at their interfaces to cause an intermixing of the juxtaposed material thereof throughout the region of the border portions (156, 158) and throughout the regions of the perforations (152). When the resulting sandwich structure is cooled to room temperature and the films return to the hardened state, they are firmly bonded together in the region of the border to form an integral fringe (168) which seals the peripheral edge of the metallic sheet member from ambient conditions and throughout the regions of the perforations (152) such that the first and second films (144, 146), respectively, are drawn firmly into engagement with the metallic sheet member (142) by reason of the differential coefficient of thermal expansion between the metallic sheet member and the hydrophobic film material. The construction has application to the construction of bipolar batteries. <IMAGE> <IMAGE>

IPC 1-7

H01M 4/02; H01M 10/04; H01M 10/34; H01M 12/08

IPC 8 full level

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